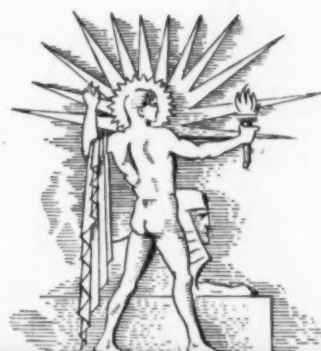


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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •



April 27, 1940

Germ Barrage

See Page 269

A SCIENCE SERVICE PUBLICATION

Do You Know?

An Australian insect imported to battle the long-tail *mealybug*, pest of California orange groves, is reported making good.

Germany figures that 100,000 sports fishermen who have volunteered to aid with the food supply will catch 5,000,000 pounds of *fish* this year.

The South Magnetic *Pole* is generally believed to cover an area of ten or more miles, and apparently shifts from year to year.

In 50 years, more than 2,500 patents have been granted for *railroad tie* materials replacing wood, but wood is still in general use.

Scraps from the table should not be the sole diet of *pet animals*, a nutritionist warns, because they may lack some needed food elements.

Soybeans, famous Manchurian crop, are now coming to Europe in quantities from United States farms—result of war and shipping conditions.

Chungking, inland capital of the Chinese republic, has attracted the greatest gathering of talent, skill, and brains in modern China's history, says an American professor of political science, recently returned from the Orient.

In some regions of South Africa, wild animals plague automobile drivers at night by blocking roads and becoming blinded by car lights; but only the *rhinoceros* is considered dangerous, provided motorists stay inside their cars.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in *SCIENCE NEWS LETTER* are based on communications to *Science Service*, or on papers before meetings. Where published sources are used they are referred to in the article.

AERONAUTICS

What new idea may make armor practicable for airplanes? p. 263.

AGRICULTURE

Where were new rust-resistant wheat varieties developed? p. 263.

ARCHAEOLOGY

Where did American scientists unearth a "Rosetta Stone" for an old Persian language? p. 265.

Where was hair-pulling a customary method of warfare? p. 264.

ASTRONOMY

What planet is at its brightest in May? p. 266.

CHEMISTRY

Of what material are playing cards now made? p. 264.

What pleasant use has been found for castor oil? p. 265.

GENERAL SCIENCE

Do you feel pain more than others do? p. 260.

How can water be used in the treatment of cancer? p. 259.

What effect did colchicine have on sex of a plant? p. 261.

What hazard is faced by physicists who work with neutron rays? p. 259.

What is necessary to make the fruits of science of constructive value to mankind? p. 261.

What proportion of visible red rays are reflected by the human cheek? p. 260.

What was the first of all musical instruments? p. 262.

When are the cosmic rays at their highest intensity? p. 260.

MEDICINE

Do men dying from cold expire suddenly? p. 265.

What are the great advantages of the new swift treatment for syphilis? p. 263.

What causes the "Rubens' Venus" type of fault fat distribution? p. 270.

What danger may lie in a sex hormone treatment? p. 268.

What new relief has been found for sufferers with angina pectoris? p. 264.

What simple chemical has been found to work as maggots did to heal wound infections? p. 264.

Why does yeast cure cancer in mice? p. 268.

MEDICINE—PHOTOGRAPHY

What did a super-speed photograph of a sneeze reveal? p. 269.

PHYSICS

What kind of girdle was worn by the Queen Elizabeth? p. 267.

PHYSIOLOGY

What new service to physiology is performed by the atom smasher? p. 270.

PUBLIC HEALTH

What disease is spreading in England? p. 264.

RESOURCES

How does the war in Scandinavia affect American book publishing? p. 262.

A penguin can sleep standing up, using its tail as an added support.

There are now nearly 2,000 television sets in homes in the New York area.

Asbestos is rated a critical mineral in United States defense chiefly because of its use in brake-band linings and clutch facings, making it important in transport.

The historic mint building at Carson City will house Nevada's State Museum.

British coal miners are striving to produce 30,000,000 extra tons of coal needed by the nation for a war year.

A ghost-like makeup of zinc oxide is worn by some oil-well and pipe line workers, to avoid blisters and burns on their faces.

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GENERAL SCIENCE

Cancer Treatment of Future May Include Jets of Water

Academicians at Spring Meeting Also Hear Reports In Fields of Physics, Chemistry and Psychology

A JET of water under pressure of 15,000 pounds per square inch, issuing from a tiny hole, may become part of cancer treatment in the future. This method of painlessly forcing water through the skin instead of using a hypodermic needle injection was reported by Drs. G. Failla and T. R. Folsom, Memorial Hospital, New York City, at the meeting of the National Academy of Sciences in Washington.

Cancer yields more readily to X-ray treatment when distilled water has been injected to drown the cancer, as it were, after X-ray bombardment, Dr. Failla has previously shown.

The idea of using a very fine, high-pressure jet of water came from reports of the injuries suffered by workers with high-pressure oils. The injuries were at a considerable depth from the surface of the body. The oil, emerging in a fine stream from a tiny hole, penetrated the body without the worker being aware of it. The method may be used, Dr. Failla suggested, not only for getting distilled water into tumors in conjunction with X-ray treatment but also for injecting radioactive substances into the tissues.

The water jets penetrate the skin an inch or more, preliminary tests have shown. Skin offers considerable resistance to the jet as compared with other substances. The jet can penetrate raw potatoes, for example, to a depth of three or more inches.

Although the water jet can be used to introduce liquids into human tissues, Dr. Failla says no "distinct superiority of the jet over the needle method" has appeared so far.

Science News Letter, April 27, 1940

Hazard to Neutron Workers

SCIENTISTS pioneering with neutron rays, new tool of physics and new experimental weapon against leukemia and cancer, face the danger which injured and killed many early X-ray and radium workers before the dangers of these healing rays were discovered.

The danger to the neutron ray workers appeared in reports presented before the National Academy of Sciences.

A dosage of as little as one-hundredth of an "n" per day of fast neutrons ("n" being the measure of a neutron dosage unit as "r" is the measure of an X-ray dosage unit) "may be unsafe if the exposure continues over a period of about ten years," Dr. Robley D. Evans, Massachusetts Institute of Technology, has calculated.

Scientists have been working with neutrons for seven or eight years, which brings them close to the danger line estimated by Dr. Evans. Although they had the experience of the early X-ray martyrs to warn them, it is possible that in the exciting period of atom-smashing with the cyclotrons and other investigations

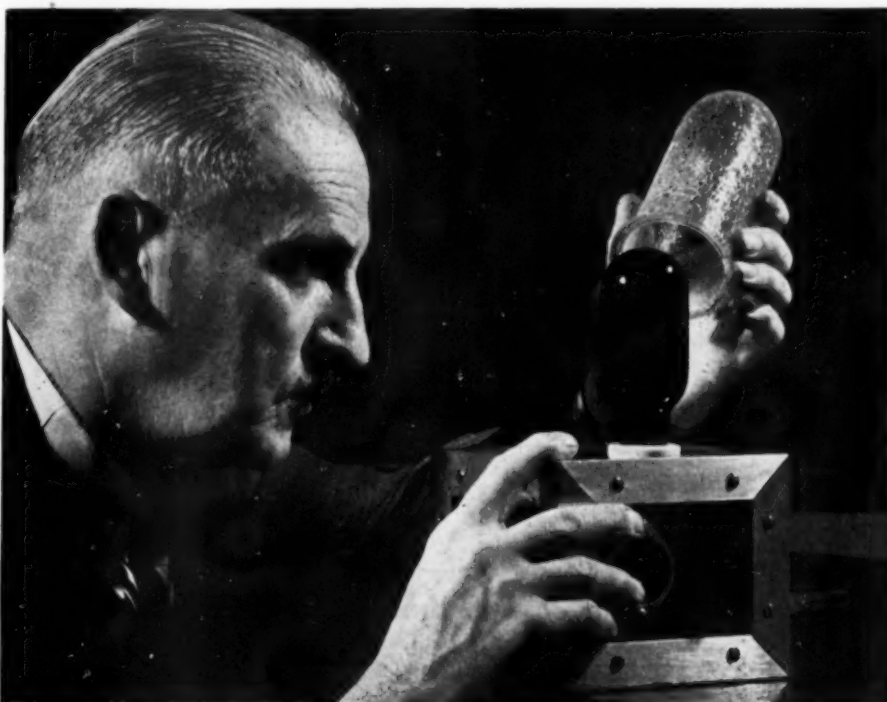
using neutron rays, they may have neglected to take all precautions.

Tolerance of animals to neutron rays cannot be used as an absolute guide for human experience, Dr. Evans pointed out, because "the relative radiation sensitivities are entirely unknown for small doses."

Neutrons produce their effects on living tissues by the secondary recoil rays which they produce in the body by collision with hydrogen, carbon, nitrogen, oxygen and other atoms, Dr. Evans explained. The effect of the neutron recoil rays is closer to that of alpha rays from radium than to any other radiation which has been studied extensively with regard to its effect on living tissues.

The effect of alpha rays on human tissues is known from study of victims of chronic radium poisoning, as in the cases of the girls who painted luminous watch dials, and of the radium mine workers who got lung cancer from inhaling radon. Using facts available from studies of these persons, Dr. Evans arrived at his figure of the limit of safety for exposure to neutron rays.

"In modern laboratories accurate data on the dosage received by each worker should be part of the routine operating records. Only when such data have been



DARK LIGHT IN COLOR

The glass shell for this ultraviolet lamp has been treated chemically to turn the invisible light to visible color. Examining the new development is Dr. Phillips Thomas, of the Westinghouse Research Laboratories.

accumulated over a long period of time can we make any positive statements on safe working dosages. Statistics on the dosage, health, and blood analysis of laboratory workers and controls should be accumulated and compiled," declared Dr. Evans.

Science News Letter, April 27, 1940

Heat Through Cheek

NOVELISTS used to turn a whole battery of thermal adjectives loose on the cheeks of their heroines: "glowing," "flushed," "hot," were only the beginning of their catalog. Just how much heat a cheek can actually handle has at last been made the subject of scientific measurement, in tests reported by Dr. C. Hawley Cartwright, John Daniel and Alex Petruskas of the Massachusetts Institute of Technology.

The three scientists, to be sure, were not interested especially in cheeks as such. They wanted to know about the ability of human flesh generally to transmit and reflect infra-red (heat) rays. A cheek is the handiest living tissue screen available, because it is of a convenient thickness (about one centimeter) and because it is easy to put a ray source on one side and small measuring instruments on the other.

In the tests it was found that the cheek reflects about half of all visible red rays falling upon it. From there on down into the invisible infra-red region, reflection decreases as more and more of the rays pass through skin and flesh. Greatest transmission was found at the long wavelength of 11,000 Angstrom units; from there transmission dropped off again, reaching zero at 13,500 Angstroms.

In the course of the experiments it was shown that the radiations from a tungsten lamp equipped with a water filter could pass through the cheek until a temperature rise of three degrees Fahrenheit occurred before the human guinea pig undergoing the test felt any external discomfort.

Science News Letter, April 27, 1940

Cosmic Ray Maximum

ROBOT balloon flights which carried an ionization chamber to heights of 15.5 miles have disclosed that after correction for the effects of variations in the earth's magnetic field, the maximum of cosmic ray intensity in the upper air comes in the springtime, Dr. William P. Jesse of the University of Chicago told the meeting.

Dr. Jesse, one of the group of sci-

tists who have been extensively investigating the nature of cosmic rays under the direction of Nobelist Arthur Compton at Chicago, said that more work will be needed before it can be proved that the spring maximum in cosmic ray intensity is a true seasonal effect.

The unmanned balloon flights were primarily directed to determine whether cosmic ray intensities at the top of the atmosphere varied with time. Changes of more than 15% were observed which appear to follow the "world-wide" variations previously reported by other investigators from ground stations. It appears that the 15% changes at the top of the atmosphere are due to a large extent to intensity changes in the magnetic field surrounding the earth.

Dr. Jesse also reported on recent work by other Chicago cosmic ray researchers. He said that Drs. Marcel Schein and E. O. Wollan have studied the production of mesotrons at high altitudes. They found, Dr. Jesse declared, that mesotrons began to be generated in a lead block carried aloft when an altitude of about 4 miles was reached.

Dr. G. Herzog, also of the University of Chicago, has investigated slow mesotrons with a Wilson cloud chamber apparatus to take pictures of their tracks up to altitudes of 29,000 feet in airplane flights, Dr. Jesse also disclosed.

At sea level and moderate altitudes slow mesotrons (meaning weak in energy) are very rare because they are absorbed in the earth's atmosphere and only a very few tracks have been observed in cloud chambers on the ground. Dr. Herzog, however, obtained 12 tracks of mesotrons in some 230 photographs taken at high altitudes during a three-hour flight.

Science News Letter, April 27, 1940

New K Vitamins Better

BBETTER results in checking dangerous bleeding with vitamin K are promised by new, synthetic K vitamins announced by Drs. E. A. Doisy, S. B. Binkley, S. A. Thayer, R. W. McKee and D. Richert, of St. Louis University.

The new anti-bleeding chemicals related to vitamin K can be dissolved in water, whereas natural vitamin K compounds cannot. This means that the natural K vitamins must be taken by mouth, but sometimes the patients needing the vitamin most are so sick they cannot take anything by mouth. The new, water-soluble K vitamins can be injected by hypodermic needle in such cases.

The natural vitamin K₁ has previously been isolated and synthesized by Dr.

Doisy and associates and they told also about the chemical structure of another natural anti-bleeding compound, vitamin K₂.

Science News Letter, April 27, 1940

People Feel Same Pain

YOU may think you are more sensitive to pain than your neighbor, or less sensitive to it, but actual measurements show that the degree of sensitivity is very nearly alike for most persons.

Like normal body temperature, pulse and breathing rates, the pain threshold in man is relatively stable, Drs. George A. Schumacher, Harold G. Wolff and Helen Goodell, New York Hospital and Cornell University Medical College, reported.

Whether a person complains of the pain of a burned finger or says nothing about it depends not so much on the actual amount of pain as on his experience and attitude, they discovered from pain tests of more than 100 persons. The group included persons of both sexes, different ages, education and social experience.

The amount of light radiation which, focused for three seconds on the surface of the forehead, would just produce pain was determined for each of these 100 or more men and women. For 91 out of 100, the variation in the pain threshold was within 8% of the average. Greatest variation was only 16%. That means no one is more than 16% more or less sensitive to pain than the average person, and that most people are more or less sensitive than the average by only 8% or less.

Each person tested was asked to express an opinion about his or her own pain sensitivity. Most of them had mistaken ideas on this point. With few exceptions, there was no relation between how sensitive or insensitive to pain he thought he was and how he measured in the tests.

The wide individual variations in reaction to pain—tears, curses or stoic silence—are in contrast to the uniformity in the pain threshold and seem to depend on individual experience and attitude.

Science News Letter, April 27, 1940

Later reports of the National Academy of Sciences meeting, with pictures, will appear in next week's issue of SCIENCE NEWS LETTER.

During the World War, the United States airplane industry turned out more than 23,000 planes and 30,000 engines.

GENERAL SCIENCE

Plant Changed From Single To Two-Sexed by Colchicine

Doubling Chromosome Numbers Makes Profound Changes; Science Is Shaping American Culture, Art, Religion

PROFOUND sex changes in plants can be made by means of the drug colchicine, it was reported at the meeting of the American Philosophical Society in Philadelphia, by Drs. H. E. Warmke and A. F. Blakeslee of the Carnegie Institution of Washington. These changes, like others wrought by the same drug, are brought about through the heredity-bearing chromosomes.

The particular plant used by the two researchers was an Old-World species known as *Melandrium dioicum*. In nature, this plant bears male and female flowers on separate plants, instead of having male and female (pollen and seed-producing) parts in the same flowers, as is the case with most commonly known plants.

Sex in *Melandrium*, as in many other plants and animals, is linked up with two particular chromosomes, known for convenience as the X and Y chromosomes. A plant with the combination XY is male, or pollen-producing. One with the combination XX is female, or seed-bearing.

By treatment with colchicine, new strains of *Melandrium*, with double the usual chromosome numbers, have been produced. Sex chromosome combinations are thus possible in the combinations XXXX, XXYY and XXXY. XXXX plants are wholly female, XXYY plants wholly male. XXXY plants are male but have a touch of female about them, being able to produce a few seeds when self-fertilized.

From seeds produced by this self-fertilization new plants have been produced that have two-sexed flowers like those found in the majority of familiar forms, able both to produce pollen and to bear seed.

Science News Letter, April 27, 1940

Dual Personality Theory

THE PECULIAR effects of curare, Indian arrow poison which produces a sort of dual personality in dogs, are eliminated in animals that have lost the entire temporal lobes of the brain. Dr. Edward Girden, psychologist of Brook-

lyn College, told the American Philosophical Society.

Tricks learned by dogs drugged with curare are completely forgotten when the dogs are normal. And learning in normal conditions is lost while under the influence of this strange drug. This has already been established by previous research, and psychologists have theorized that learning ordinarily taking place through the cortex is "short-circuited" through other parts of the nervous system when the brain is put out of operation by the drug. When the animal recovers, these subcortical mechanisms are blocked by the brain's action.

The theory is confirmed by Dr. Girden's research. He found that after loss of the temporal lobes of the brain, no such separation of personality takes place under curare. Learning both with and without the drug is then sub-cortical.

Science News Letter, April 27, 1940

Work on Fatherless Rabbits

WORK done to date on producing rabbits without fathers was reviewed by Dr. Herbert Shapiro of Vassar College and Prof. Gregory Pincus of Clark University for the American Philosophical Society. They told how they obtained large numbers of rabbit ova for study by stimulating the does with injections of pituitary extract. Ova thus obtained were treated with salt solutions both above and below the level of normal blood concentration.

This stimulation resulted in initiation of development and early growth stages in many of the eggs. Meanwhile it was noticed that chance chilling of some of the eggs started their development, so some of the eggs were purposely chilled, with positive results. Finally, by surgical operation a water-cooling jacket was placed around the fallopian tubes in living animals. After treatment, the cooling apparatus was removed and the does permitted to recover from the operation. It was found that numerous ova were activated in this way, but only one actually developed into a complete young rabbit.

Science News Letter, April 27, 1940

Science a Social Influence

SCIENCE is a decisive shaping influence in American culture, not only in material things but also in our intellectual life, our amusements, our art and our religion, declared Prof. Arthur H. Compton, University of Chicago Nobelists, before the American Philosophical Society.

"At no previous time in history has life been so greatly influenced by science as in the United States today," Prof. Compton stated.

America's pioneer (*Turn to next page*)

ARCHAEOLOGY

Suggestion for Campaign From Ancient Egypt

HERE you are, politicians! A handy figure of speech practically made to order for any Presidential candidate of 1940 comes straight from old Egypt. It's done in nautical terms: "The low-cable of the South, the mooring-stake of the southerners, the excellent stern-cable of the Northland."

Coined to praise Egypt's first feminist Queen, Hatshepsut, the shipping metaphor was thought up by "a high ranking official" of 1500 B.C. He added another good line: The queen was one "whose plans are excellent, who satisfies the Two Regions when she speaks."

Science News Letter, April 27, 1940



LADY WITH BEARD

Hatshepsut, feminist queen of Egypt wore the false beard of a man in this "portrait."

tradition has been a strong influence in our ready acceptance of changes wrought by science, the noted physicist continued:

"Throughout history man's cultural growth has followed the gradual growth of his scientific knowledge. Even before the outbreak of the present wars, America had become the leader in most fields of scientific endeavor. The tradition of the pioneer has made it relatively easy for the American to alter his habits as required by the introduction of new techniques, with the result that in this country social changes have gone ahead with the speed not found elsewhere.

"As long as such rapid changes are occurring, we cannot hope to adapt the art of living as completely to our technological surroundings as was done in the case of the classical culture initiated by the Greeks and refined through the centuries to fit an essentially stable world. Yet we are shaping our lives on a more heroic scale."

Prof. Compton laid special stress on the necessity for cooperation in making the fruits of scientific endeavor available to mankind. He said:

"Without cooperation, scientific knowledge cannot be made effective. If men divide into antagonistic groups it becomes terribly destructive. Thus in the technological society of which American culture is the supreme example, science emphasizes as never before the need of a will toward cooperation, that is, of the love of our neighbors.

"Science thus plays a three-fold role in American culture. First, it supplies a direct outlet for man's creative instinct in building the permanent structure of scientific knowledge. Second, it supplies the means of living a life richer in health and in its variety of experience. And third, it creates a world setting in which man must rapidly adapt himself to live as a part of a more extensive and more highly coordinated society."

Science News Letter, April 27, 1940

Spectra Synthesized

A THEORETICAL synthesis of the spectra, or light-mixtures, of super-novae, enormously energetic exploding stars, was presented by Drs. Cecilia Payne-Gaposchkin and Fred L. Whipple of Harvard College Observatory. These vast bursting stars seem to have less hydrogen than is found in the atmospheres of ordinary stars, but are richer in helium and particularly in gaseous iron. Carbon and nitrogen also appear to play an important role in the production of super-novae.

Super-novae are not particularly hot when they are giving off their greatest amount of light. Their temperature then is on the order of 12,000 degrees absolute. Two hundred days after greatest light they are much hotter, probably between 30,000 and 50,000 degrees absolute.

Science News Letter, April 27, 1940

Earliest Musical Instrument

FIRST of all musical instruments was the flute, and the number of notes in the various musical scales the world has known was fixed by the number of fingers used in playing various types of this instrument, Prof. Dayton C. Miller of the Case School of Applied Science told the American Philosophical Society.

Primitive flutes made of hollow bones have been found in cave dwellings of the Stone Age, and primitive peoples still use flutes of the same kind made out of bamboo or hollow reed. The simplest flute plays only one note. To get a series of tones it is necessary to use a number of them bound together—the "pipes of Pan" kind of instrument.

Then it was discovered (probably by accident) that a pipe or flute with a hole in its side could be made to produce two notes, as the hole was stopped or left open. By boring more holes, up to the total of fingers available, a whole series of notes—the musical scale—could be played on the single tube.

Flutes have always been of three general types, Prof. Miller said. The earliest ones were sounded by blowing across the open end; classic Greek flutes were of this variety. Later, a blow-hole was made in the side near one end; this "cross flute" was the ancestor of the modern orchestral instrument. The third flute type added a sort of artificial mouth in the shape of a whistle; of this type were the "recorders" mentioned by Shakespeare and Milton.

Having been the deciding influence in molding the musical scale, the flute itself came in for some revolutionary changes when Johann Sebastian Bach fixed that scale in essentially its present form, filling it up with half-tones. The simple tube with seven finger-holes could no longer meet the demands upon it—human hands lacked the necessary additional fingers. The problem was solved in 1832, when Theobald Boehm of Munich invented the modern keyed flute, which permits eight fingers to do the work of a dozen or more.

Prof. Miller, who owns one of the most notable collections of flutes in the world, illustrated his lecture with an

exhibit of fifty of his instruments, playing selections on some of them.

Science News Letter, April 27, 1940

Tree Ring Records Sought

TREE ring records of big stumps and also of heavy timbers in old houses in the Philadelphia region are being sought through cooperation of interested scientific amateurs, by a special committee on education and participation in science of the American Philosophical Society. The committee is working under the direction of Dr. Edward E. Wildman.

It is hoped to obtain from these tree ring data a connected story of climatic fluctuations in the Delaware Valley. To supplement these records "written in wood," the committee is also broadcasting a request for dated mentions of notable weather phenomena in old diaries.

Eight years ago, notable success was scored in a cooperative search by amateurs for unusually large and old trees. More than 400 trees that were standing during the time of William Penn were located. Since then, some of these trees have been cut or blown down, so that cross-sections giving tree ring records will be available.

Science News Letter, April 27, 1940

RESOURCES

Scandinavian War Cuts U. S. Paper Supplies

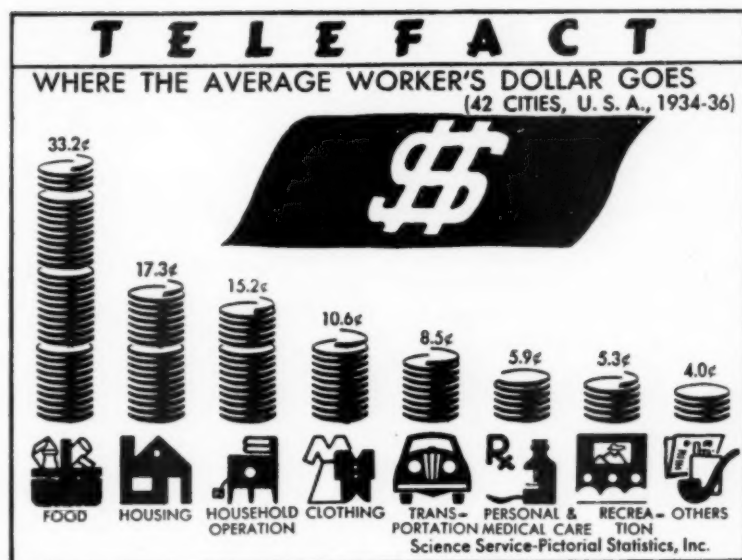
WAR in Scandinavia will create new, and possibly serious, problems for book and magazine publishers in the United States. So it appears, as experts check on this country's imports of wood in pulp form.

Over one-fifth of the pulp used in the United States is regularly imported, and Scandinavian countries have been depended on to supply the greater quantity of this imported pulp. Sweden has led in this trade with the United States. Chief use of the Scandinavian pulp is for books, magazines, and writing paper. Some is also used in making brown paper and board.

Science News Letter, April 27, 1940

Caviar, rich in Vitamin D, is a possible substitute for cod liver oil.

Not dreaming of a scientific era of discovery to come, Geneva's citizens in the sixteenth century decreed: "For once and forever, in no branch of learning shall any one stray from the philosophy of Aristotle."



MEDICINE

Five-Day "Cure" of Syphilis Ready for Wider Trial

Speedy Eradication of Syphilis and Gonorrhea Now Anticipated From Two New Treatment Methods

FIVE-DAY treatment of syphilis instead of the present 18-month course of treatment, may be generally available within another year or so. In this case both syphilis and its twin deadly plague, gonorrhea, for which sulfanilamide is hailed as a speedy remedy, will vanish from the land with such other conquered plagues as yellow fever, cholera and bubonic plague itself.

It is not too much, in fact, to expect that if the five-day syphilis treatment becomes established, public health officers will be able to enforce quarantine and treatment of syphilis patients, to prevent their spreading the disease, as they now require isolation of smallpox patients for the protection of the community.

The speed-up treatment of syphilis is accomplished at Mt. Sinai Hospital, New York City, by dropping syphilis-curing arsenic drugs into the patient's veins all day long for five successive days. At Miami Valley Hospital, Dayton, Ohio, Dr. Walter M. Simpson has been speeding syphilis cures by putting the patients under chemical treatment in the hot box or artificial fever machine. The fever intensifies and fortifies the curative action of the chemicals.

Stopping the spread of syphilis at

present depends on the patients having the money and persistence to continue treatments once a week for 18 months. U. S. Public Health Service records show that about four-fifths of the patients stop the treatment before they have ceased to be a danger to the community, that is, while they are still in the infectious stage. The five-day method keeps the patient in the hospital until he is no longer infectious.

This method, after a seven-year trial on 350 patients at Mt. Sinai Hospital, is now ready for release on trial in other well-organized hospitals. Prompt cures of the first 25 patients, cures which were permanent in the case of 15 who have been observed over five years, and cures in 85% of the total group were reported at a New York conference of syphilis specialists and public health officials under the chairmanship of Surgeon General Thomas Parran, U. S. Public Health Service.

Science News Letter, April 27, 1940

Sap from *sugar maples* in New York State is running sweeter than last year, but not up to the highest record—7% sugar content from a tree in Burlington, Vt.

AGRICULTURE

New Wheat Varieties Resist All Rusts

UNCEASING warfare goes on between wheat breeders and the most destructive of wheat's fungus foes, black stem rust. Although this fungus is known under only one specific name, *Puccinia graminis Tritici*, it is an exceedingly variable species, and is constantly evolving new strains, principally by natural hybridization. So it has come to pass that many a hopeful immune strain of wheat has been developed, only to be overtaken in a few years by a new strain of the rust fungus.

Newest recruits to the army of immune wheats are announced from the Dominion Rust Research Laboratory at Winnipeg, Canada, by a triad of researchers: R. F. Peterson, T. Johnson and Margaret Newton. There are six new wheat strains, five from seed imported from Kenya Colony in Africa, the sixth a native Canadian product. All six have thus far shown very high resistance to 20 strains of rust, to which they were purposely exposed.

The one all-Canadian wheat variety in the group owes its existence not to professional scientists but to an observant farmer, M. S. J. McMurachy, of Strathclair, Manitoba. Mr. McMurachy noticed one rust-free plant in a field of rusty wheat, one day ten years ago. He kept the seed and increased it. When his planting of the new variety came triumphantly through the bad rust season of 1935 he brought it to the attention of the Winnipeg laboratory.

Quite properly, the new variety has been given the name McMurachy's Selection.

Science News Letter, April 27, 1940

AERONAUTICS

Airplane Armor Possible If Gunner Sits in Turret

ARMOR protection for warplane crews is again demanded, after several years in abeyance. If it seems necessary in American bombers, weight might be saved by adapting a British idea just made public. Newest British bombers have guns at any convenient place, in tail, nose, underneath, but the gunner sits in a central turret, aiming them by remote control. Gunner's turrets are beginning to be armored in the British craft, but it would be easier to case this position in light armor, with considerable saving in weight over what would be required were the guns there also.

Science News Letter, April 27, 1940

MEDICINE

Severe Heart Pain Relieved by Oxygen

THE SEVERE and often terrifying pain of certain types of heart disease, angina pectoris and coronary thrombosis, can be relieved by letting the patient breathe 100% oxygen through a mask even in cases not relieved by morphine or other drugs, Dr. Edward W. Boland, of Los Angeles, reports. (*Journal, American Medical Association*, April 20)

A patient who could not exert himself even to tie a shoelace without having a severe paroxysm of pain got complete relief or marked lessening of the pain when breathing 100% oxygen. Other patients in similar condition were likewise greatly helped. By putting on the mask before undertaking activities known to bring on an attack, the attacks of pain could be prevented.

The mask used is the one developed by Mayo Clinic scientists and now used in high altitude flying.

Science News Letter, April 27, 1940

ARCHAEOLOGY

Hair Pulling in War Old Polynesian Idea

EUROPE'S armies haven't tried hair-pulling yet. But it is an old wartime idea of Polynesians in mid-Pacific. In fact, Polynesians had a number of ideas about warfare that sound interesting in this day when the public is becoming expertly familiar with tactics, strategy and defense.

Putting women into war, for example, was tried in Polynesia in ways modern Europe hasn't thought of yet. R. W. Williamson tells some of them in his new collection of scientific studies, "Essays in Polynesian Ethnology."

The hair-pulling idea was a feminine feature of war on Penrhyn Island. Women of both armies used to lead the attack, he says, and they would eagerly clutch after handfuls of the enemy's hair. Hair-cutting prior to battle was a safety-first measure. Men rarely fought with women in these encounters, it appears, each sex doing its own fighting in its own way.

In the Hervey Islands, women went to war with their husbands, as aides. Not actually fighting, they stood close at hand ready to pass out supplies of weapons or stones.

What we would certainly call war correspondent duty was assumed by Polynesian women of the Marquesa Islands.

Following the armies, they chose a high vantage point to watch the battling, and sent progress reports home.

In Samoa, women of high rank had the delicate mission of carrying proposals for truce.

Some of Polynesian war-making sounds very modern. Writes Mr. Williamson:

"In Samoa alliances with other peoples were always sought before engaging in war, and a district would often wait for months before it suited their allies to come."

Science News Letter, April 27, 1940

PUBLIC HEALTH

Increase in Meningitis Alarms English Doctors

MENINGITIS cases in England and Wales have increased since the war began to a number greater than the previous record high reported in 1915 and the situation is alarming the medical profession, although the general public seems not to have been much concerned so far.

"Epidemiologists who studied the behavior of outbreaks during the last war are not surprised that the prevalence of the disease has been unusually great and are apprehensive of a considerable epidemic in the near future," states the editor of the *Lancet*. (March 2)

Meningitis is essentially a disease of recruits, that is, of newcomers to community life who have not had time to become adapted to or latently immunized by the germs in their new environment. War mobilization, and the black-out and bitter winter weather which interfered with proper ventilation are blamed for the present alarming increase in cases.

Prevention of the disease under such conditions is difficult, although army officers are advised that provision of plenty of space in barracks, especially sleeping quarters, will help keep down the number of cases.

The dramatic results of treatment of meningitis with the chemical remedies sulfanilamide and sulfapyridine, is the only cheerful note in the situation. Prompt treatment with these chemicals, it is said, will reduce deaths to less than five out of every 100 patients. Even under "appalling environmental and hygienic conditions which could not be corrected" in equatorial Africa, these two remedies, it is recalled, reduced the fatality among treated natives during a recent outbreak from 70% to 5%.

Science News Letter, April 27, 1940

IN SCIENCE

MEDICINE

Ammonium Bicarbonate Heals Wound Infections

ONE of the surprising medical discoveries of the World War was that squirming maggots of the blowfly would heal stubborn wounds in human flesh. Repulsive as such a condition may be, the maggots actually kept the wounds clean and allowed them to heal. The accidental infection of the battlefield became medical practise, doctors using maggots made germ free for safety as a therapeutic aid.

Later it was found that it was a chemical that the maggots produced that did the healing. Dr. William Robinson of the U. S. Department of Agriculture's Bureau of Entomology and Plant Quarantine in 1935 discovered that allantoin in the secretions of maggots would heal wounds rapidly.

Then he found that urea, a simpler chemical, acted similarly. Both of these chemicals were used practically.

Now a still simpler chemical, ammonium bicarbonate, is found by Dr. Robinson to have the same effect. Ammonium bicarbonate is formed naturally from urea by the action of an enzyme, urease. Already tried by many physicians and surgeons, Dr. Robinson tells in a report to the *Journal of Surgery* how a 1% solution of ammonium bicarbonate has proved effective when used either as a wet pack or as an irrigation of an open wound. Some of the conditions cleared up by the new treatment were: chronic osteomyelitis, diabetic and varicose ulcers, middle ear infections, stitch abscesses, infected lacerations, and other purulent wounds.

Science News Letter, April 27, 1940

CHEMISTRY

Plastic Playing "Cards" Are Now on the Market

THOSE playing cards you use for bridge tonight may not be cards at all in the usual sense of the word. They may be made of a plastic instead of a paper product. Plastic playing cards have been on the market for three years.

Science News Letter, April 27, 1940

NE FIELDS

CHEMISTRY

Castor Oil Replaces Drying Oils from Overseas

IMPROVED ways of dehydrating castor oil so that it can be used as a carrier for paint pigments was reported by F. G. Bessler and J. G. Weaver of the Sherwin-Williams Company, Cleveland, Ohio, to the American Chemical Society in Cincinnati.

Until recently it was difficult to change the sticky, non-drying castor oil into a pale drying oil by removing part of the water.

Chemists Bessler and Weaver reported success in using the dehydrated castor oil to produce rapid drying, high quality finishes without the use of tung oil or perilla oil. Tung oil comes mainly from China and perilla from Manchuria.

Excellent color durability is secured by research which seeks to free the United States from the risks of importing much of its paint drying oils obtained from distant lands now in war zones.

Science News Letter, April 27, 1940

METALLURGY

Sand Used for Castings, Can Be "Shocked"

THE SAND mixtures used to mold metal castings in foundries, like human beings, can be "shocked", it has been found by new research at Cornell University.

If heat is applied too rapidly to some molding sands at temperatures as low as 1,000 degrees Fahrenheit they will crumble; but if heat is applied slowly samples of the same mixtures actually gain in strength at temperatures up to 2,000 degrees.

Profs. H. Ries and A. C. Davis of the College of Engineering, who have been conducting the tests, point out that the proper sand mixtures for castings have all-too-frequently been prepared by experience alone and rule-of-thumb methods from the past.

The Cornell research, undertaken for the American Foundrymen's Association, seeks to study the behavior of sand and the various binders which have been used to help its molding qualities. Clay,

cement, various kinds of cereals, oil, molasses and resins have been used by the industry as binders at various times in the past.

Foundry sands, the scientists explain, have to meet unique conditions. They must be strong enough to hold metal flowing like water when it is poured. They must be porous enough to permit gases to escape through the walls of the mold, and they must be sufficiently smooth so that the finished casting will have a proper finish. Along with this, the molding sands must disintegrate properly when the casting within them cools and contracts. One sand mixture used in a well-known foundry will hold its shape for two minutes at temperatures of 2,600 degrees Fahrenheit under 40,000 pounds of metal and then, at the end of five minutes, the sand will crumble of its own weight. That's how delicate the sand mixture has to be and how intricately balanced are its properties.

The fundamental studies at Cornell are expected to aid the foundry industry greatly. Profs. Ries and Davis predict that "foundrymen in the not-too-distant future will be able to set down in their specifications the mixtures of sand and 'binder' to be used with as much precision as they now determine the constituents of the metal itself."

Science News Letter, April 27, 1940

MEDICINE

Death from Cold Usually Preceded by Sleep or Coma

ABOUT those photographs from Finland in which Russian soldiers seemed to have been frozen to death in the act of throwing a grenade or lying with a leg straight up in the air: The *Journal of the American Medical Association* (April 6) finds it difficult to understand how a person could suddenly be frozen stiff. It is considered unlikely that exposure to cold could be so sudden and the cold so severe as to eliminate the drowsiness, sleep and coma that precede death from freezing. However, great muscular effort or exhaustion previous to death, sudden death, death due to violent disturbances of the nervous system, and exposure to cold are factors predisposing to instantaneous cadaveric spasm or cadaveric rigidity. This might affect an exhausted soldier. The body may be found in a grotesque position such as kneeling or standing upright. Usually, however, there is something which supports the body in this position. All of which is not any more pleasant than the photographs.

Science News Letter, April 27, 1940

ARCHAEOLOGY

Find "Rosetta Stone" For Old Persian Language

INSCRIBED stones unearthed by American archaeologists in Iran prove a valuable "Rosetta Stone" for unlocking difficulties in Pahlavi or Middle Persian language, the Oriental Institute of the University of Chicago reports.

Discovered on buried walls near royal Persian tombs, the inscriptions provide versions of similar data in Greek, Persian, and Middle Persian with sufficient duplication to give important aid to scholars translating the Middle Persian, somewhat as the Rosetta Stone with its duplicated inscriptions in Greek, hieroglyphics and demotic Egyptian helped in solving Egyptian writing.

A translation of the inscriptions from Iran, just published by Dr. Martin Sprengling in the *Journal of Semitic Languages and Literature* at the University, sheds new light on the old Zoroastrian religion. It shows that late in the third century A.D. this religion still had no sacred book such as the Bible or Koran, although ritual forms and songs were used.

The Pahlavi stones are the discovery of the 1939 joint Iranian expedition of the Oriental Institute, the University Museum of the University of Pennsylvania, and the Boston Museum of Fine Arts.

Science News Letter, April 27, 1940

ARCHAEOLOGY

7,000 Crude Stone Tools Like Old Stone Age Work

DISCOVERY of 7,000 crude stone tools made by unidentified American aborigines, who used the same techniques as Europe's Stone Age people of half a million years ago, is reported by Dr. E. B. Renaud of the University of Denver.

Dr. Renaud found the rough chopping and scraping implements during his archaeological survey of the High Plains in Wyoming. European archaeologists, to whom he has sent samples of the American stone work, agree that the work is strikingly like early stone industry of Europe's Old Stone Age. Dr. Renaud emphasizes that he has no evidence yet as to age of the American finds, and no reason to think they are as old as Europe's Old Stone Age. The bulk of the collection was obtained on the surface at three sites in a terraced river valley.

Science News Letter, April 27, 1940

ASTRONOMY

Beauty at Her Brightest

Venus, Though at Crescent Phase, at Peak of Brilliance; Can Even Be Seen in Daylight During Month of May

By JAMES STOKLEY

OF ALL heavenly objects, except the sun or moon, the planet Venus becomes brighter than any other. This month it reaches greatest brilliance as it shines in the western evening sky, toward the constellation of Gemini, the twins. With such grandeur, it is easily the first star or planet to be seen in the evening. In fact, if one knows where to look, it can be seen quite easily in broad daylight. The moon passes south of Venus on the evening of May 10, so on that date or the next, one might locate the moon first, and then look north of it to see the planet. A pair of opera glasses will help to pick it up. Then, once located, it can be seen without difficulty.

Mars Now at Faintest

Besides Venus, one other planet is visible these evenings, and is indicated on the maps, in which appear the skies of 10:00 p.m. (standard time) on May 1, 9:00 p.m. on May 15, and 8:00 p.m. on May 31. This other planet is Mars, below Venus and farther north. Quite the opposite of his brilliant sister, Mars is now about at his faintest, more than a hundred times dimmer than Venus.

Among the stars, we can easily find Castor and Pollux, of Gemini, the twins, which are just above Venus. Pollux is the northernmost member of the pair. High in the southwest is Leo, the lion. The westernmost part of this figure forms the "sickle," so-called from its resemblance to that implement. This is supposed to represent the lion's head and shoulders. A triangular group, farther east, constitutes the haunches.

In May, the great dipper is about at its evening best, for it shines almost overhead, part of Ursa Major, the great bear. The pointers, Dubhe and Merak, two stars of the bowl farthest from the handle, indicate Polaris, the pole star, or the north star, below. This, in turn, is in the little dipper, which is part of the little bear, Ursa Minor.

Hydra Longest Constellation

The handle of the great dipper points toward the southeast. If its curved line is followed on around, one can easily find Arcturus, in Bootes, the bear-driver, then Spica, in Virgo, the virgin. And, even beyond Spica, is a quadrilateral, resembling the mainsail of a ship, called Corvus, the crow. Extending underneath the crow, from a point over near the western horizon, is a long row of stars, some in a zig-zag arrangement, making Hydra, the water snake. This is the longest constellation in the entire sky. So long is it indeed that it is possible, from a point in the tropical regions, to have the head of the snake directly overhead, or at the zenith, and the end of the tail below the horizon.

Low in the southeast, Scorpius, the scorpion, is beginning to appear. On the map are shown his claws, and the star Antares, which is in his heart. Later at night, the scorpion is higher and more easily seen. In the northeast Vega, in Lyra, the lyre, is appearing. This is the brightest star now visible, though it is many times fainter than Venus. Below Vega is Cygnus, the swan, or the north-

ern cross, lying on its side, with Deneb, forming the swan's tail, at the top.

With Venus shining so brightly this month in the evening, we have a chance to see earth's nearest neighbor, a planet which resembles ours more than any other, and which, in some ways, seems the most likely to have life upon it. Through a telescope, Venus now will appear in a crescent phase, like the moon, 5 or 6 days after new.

These phases of Venus are caused in the same way as those of the moon. Like the moon, and the earth too, the half of Venus toward the sun is lighted, the other half is dark. Sometimes, when Venus is on the opposite side of the sun from the earth, the entire sunlit hemisphere is turned toward us, and then, through a telescope, it appears round, or "full."

But now it is coming between the earth and the sun. The bright half is more nearly turned away, and we have the crescent phase.

Distance to Venus Varies

There is, however, an important difference between the phases of Venus and those of the moon. The latter remains approximately the same distance, about 240,000 miles from us, whether new or full.

But when Venus is full, it is farthest away. Then its distance from the sun, 67,200,000 miles, is added to the earth's distance, 92,900,000 miles. Thus we are separated by some 160,100,000 miles.

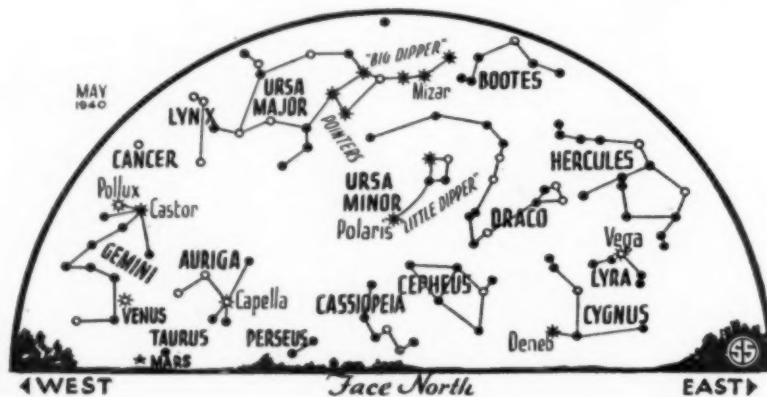
The new phase, on the other hand, occurs when the planet is this side of the sun, when the distance from us is only 25,700,000 miles. This makes it look larger, the more nearly new it is.

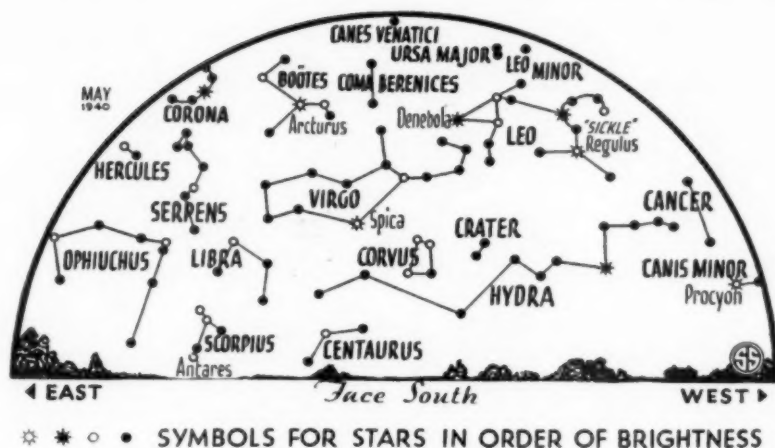
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That is why the greatest brilliance comes when it is a crescent, and not, as with the moon, when it is full.

Venus' diameter is 7580 miles, compared with the earth's 7918, so they are nearly the same size.

Because it is nearer the sun, Venus is warmer than the earth, but probably not too hot for life, like Mercury, where lead would melt on the sunlit surface. However, we know very little about the surface of Venus, since we never see it.

Venus is continually covered with clouds, and that is what makes it so very bright, because the tops of these clouds reflect a much greater percentage of light than would a surface of soil or rock, or even of vegetation.

What is below these clouds, we do not know. However, there is a thin atmosphere above them. This contains a considerable proportion of carbon dioxide, but no oxygen. Because carbon dioxide is heavier than oxygen, it is probably even more plentiful below the clouds. Plants have the power of absorbing carbon dioxide, and liberating oxygen, so the lack of the latter element makes it seem that there can be no plant life on the surface of Venus. And without plant life, there could probably be no animal life either. Therefore, like all the planets except earth, Venus seems unlikely to have life upon it.

No Landmarks Visible

Its visible surface only one of clouds, Venus has no permanent markings, and thus we have no way of telling how long it takes to rotate, that is, to find the length of the planet's "day." If it turned as fast as once in several of our days, we could detect such a motion by the spectroscope. On the other hand, if it were so slow that it always kept the same face to the sun, as Mercury does, then one side would be very cold, the other very

hot. Another instrument, the thermocouple, shows that all around the planet, on the daytime as well as the nighttime side, the temperature is the same. Thus it is believed to turn slowly, perhaps about once every thirty days.

Celestial Time Table for May

Thursday, May 2, 6:00 p.m., Moon farthest—251,900 miles away. Tuesday, May 7, 7:07 a.m., New moon. Friday, May 10, 7:46 a.m., Moon passes Mars; 10:52 p.m., Moon passes Venus. Tuesday, May 14, 3:51 p.m., Moon in first quarter. Saturday, May 18, 2:00 p.m., Moon nearest—226,700 miles away. Monday, May 20, 11:00 a.m., Venus greatest brilliancy—magnitude 4.2. Tuesday, May 21, 8:33 a.m., Full moon. Tuesday, May 28, 7:40 p.m., Last quarter of moon. Thursday, May 30, 12:00 noon, Moon farthest—251,300 miles away.

Eastern standard time throughout.

Science News Letter, April 27, 1940

PHYSICS

The Queen Elizabeth Wore A "De-Gaussing Girdle"

NEWS that the British are using a new and secret type of mine in their reported 60,000 square miles of mine fields off the German, Netherlands and Norwegian coasts may mean that British scientists have played a major role in offensive mine warfare, just as they helped to conquer the menace of the magnetic mines, sprung on the Allies by Germany a few months ago. In the case of the magnetic mines, British specialists in magnetism left their regular scientific investigations in order to develop protection for ships against the magnetic mines. The nature of this protection became known when the Queen Elizabeth arrived at New York with a "girdle" around her hull. The girdle, supplied with electric current of the necessary strength and characteristics, sets

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● RADIO

Dr. Sydney H. Ball, consulting mining geologist will discuss the use of diamonds in industry as guest scientist on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Thursday, May 2, 4:15 p.m., EDST, 3:15 EST, 2:15 CST, 1:15 MST, 12:15 PST.

Listen in on your local station. Listen in each Thursday.

up a magnetic field which in association with the steel hull and other magnetic material of the ship is such that magnetic mines laid at sea are not set off by the passage over them of a vessel so equipped. The expressive name applied to this protective device is "de-gaussing girdle." It is named after the unit of magnetic flux density. This honors a great German scientist, Carl Friedrich Gauss (1777-1855), known as the "prince of mathematicians," who in addition to being responsible for the theory of probability (not without its application to mining operations!) did fundamental work in electrodynamics.

Science News Letter, April 27, 1940

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MEDICINE

Report Cancer in Mice Cured with Yeast Extract

Bacterial Factors Present in the Yeast May Account For Effect of Treatment, But Action Is Not Clear

CURE of spontaneous breast cancer in eight out of 33 mice following injections of yeast extract is announced by Drs. R. Lewisohn, C. Leuchtenberger, R. Leuchtenberger and D. Laszlo, of Mt. Sinai Hospital, New York, in a report to the Society for Experimental Biology and Medicine. (*Proceedings*, March.)

The cancers in the eight mice disappeared and have not so far recurred. In 10 other mice treated with yeast extract the cancers were reduced in size. In the other 15 no change in the tumors was noted or they had even increased in size when treatment was discontinued or the animal died.

Effect of treatment of cancer with yeast in powder form or in pills, instead

of by injection into the veins or under the skin, will be reported later, the scientists state.

Bacterial factors which may have been present in the yeast might have accounted for the effect of the treatment on the cancers, although the exact factors responsible for the action of the yeast extract are said to be "entirely unclear."

Complete retrogression of transplanted cancers in 60% of mice and in 30% of spontaneous tumors treated with concentrated spleen extract has previously been reported by these same scientists. The cancers in the yeast-treated mice, however, were not transplanted but arose spontaneously.

Science News Letter, April 27, 1940

MEDICINE

Warn Against Cancer Danger From Sex Hormone Treatment

New York Physicians Are Alarmed By Their Experiences With Therapy Widely-Used for Variety of Disorders

WARNING of the danger of cancer from the now widely used female sex hormone treatment is issued by two New York physicians and by the editor of the *Journal of the American Medical Association* (April 20).

A case of breast cancer developing in a woman who was given a female sex hormone preparation for two years and three months is reported by Drs. Hugh Auchincloss and Cushman D. Haagen-sen, of Columbia University College of Physicians and Surgeons and Presbyterian Hospital. The New York doctors say they cannot be sure the sex hormone treatment caused the cancer, but they "are nevertheless sufficiently alarmed by our own experiences to warn against the needless and excessive administration of estrogenic substances (female sex hormones) so prevalent today."

They list some 18 conditions for which these substances are now used, including

female disorders, sterility, high blood pressure, migraine, hemophilia, senile deafness, atrophic rhinitis and acne.

"Until more is known about the effect of these substances," they conclude their report on sex hormone treatment and cancer, "we believe their use should be avoided: 1. In large or prolonged doses; 2. When there is a family history of breast cancer; 3. Without initial and repeated clinical examination of both breasts; 4. In patients with chronic mastitis, carcinoma or any form of breast neoplasm, either before or after surgical or radiation treatment."

Repeating the warning about the use of female sex hormone treatments because of the danger of cancer, the editor of the journal calls attention to another report, from England, of three cases of cancer of the womb developing among 43 patients treated with female sex hormone.

Science News Letter, April 27, 1940



OLD WOMAN POLE

ETHNOLOGY

Totem Pole Restoring Booms in Alaska

RESTORING Indian totem poles to old-time glory is a new intensive project for Alaskan Indians.

Nineteenth century natives who carved the towering cedar poles gave little thought to repairs. While very proud of family crests and personal achievements displayed in carved symbols, the Indians were not accustomed to aggressive paint-up, prop-up and repair campaigns.

A totem pole near the sea might have a 40-year lifetime. Inland, a pole might last a man's traditional career of three score years and ten. And that was that.

Now, supervised by the U. S. Forest Service, 87 Indian boys in the Alaskan CCC have nearly finished reconditioning 100 old totem poles. To insure accuracy, elderly Indians have taught the youngsters how to use the tools with which they themselves carved poles, years ago. The art of totem pole making has had little practice in the twentieth century.

Tourists have evinced so much interest in the young carvers at work, that the Forest Service believes some of these Indians will be able to earn a living by making and selling miniature poles to visitors.

A notable feature of the project is that Indian owners have donated poles as outdoor museum pieces, so that their

poles might be reconditioned at public expense. There was a time when a tribal war was fought among Indians bent on claiming and selling a pole.

Old Woman Pole is the name given

the unusual example of Alaskan Indians' totem pole art, shown in the picture, restored by young Indians under U. S. Forest Service supervision.

Science News Letter, April 27, 1940

MEDICINE—PHOTOGRAPHY

Super-Speed Shot of Sneeze Latest Weapon Against Colds

Droplets Forced From Nose and Mouth at Speed Of 100 Feet Per Second Evaporate and Spread Germs

See Front Cover

LATEST aid in the war against the common cold, influenza and other respiratory infections is the super-speed picture of a sneeze taken by Prof. M. W. Jennison and Dr. H. E. Edgerton at Massachusetts Institute of Technology and shown on the front cover of this week's SCIENCE NEWS LETTER. It is the first picture ever taken that shows what really happens when you sneeze.

The droplets given off in the sneeze travel at the rate of 100 feet per second for the fastest of them, they reported to the Society for Experimental Biology and Medicine.

Photographic enlargements of the sneeze picture show that the droplets have an apparent diameter of six hundredths of an inch or less.

The size and speed of these droplets and other knowledge the scientists expect to gain from further study of the sneeze picture is important in the fight against air-borne germs such as those that cause colds, influenza, measles and the like. When a person with one of these ailments coughs or sneezes some of the infected droplets immediately fall to the ground, but the smaller ones never reach the floor at all. Evaporating almost instantaneously, they leave behind tiny nuclei, so small they are easily carried about by the lightest air currents. Some of these nuclei are believed to carry with them disease germs. This explains the very wide and rapid spread of colds, influenza and the like, according to Prof. W. F. Wells, University of Pennsylvania.

The speed of the droplets as determined by the sneeze picture would result, in dry air, in nearly instantaneous evaporation, producing droplet nuclei, Professor Jennison and Dr. Edgerton state in their report. The speed of the droplets in relation to evaporation may be much more significant than has been realized,

and more important than settling velocity.

Later sequences of the sneeze picture showed that the involuntary closing of the mouth near the end of a sneeze tends to produce more and smaller droplets, and that the number of droplets from the nose is usually insignificant compared with the number expelled from the mouth. This may have an important bearing on the problem of germ infection because of the differences in the germs found in mouth and nose.

The sneeze picture was taken at 1/15,000 of a second by special technique for high-speed photography developed by Dr. Edgerton.

Science News Letter, April 27, 1940

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MEDICINE

Injury to Nervous System Causes "Rubens' Venus" Type

Severe Disturbance of Internal Glands Controlled By Midbrain Causes Maldistribution of Body Fat

DID YOU ever see a painting of Venus by the classic artist Rubens? As he liked to paint the goddess, she appeared thin in the face and slim in the upper part of her body, but from amidships on she was—well, just plain fat. Very fat. (Rubens, you know, was the painter of whom some one said that he bought canvas by the acre, hired models by the ton.)

But that peculiar type of fatness, the massing of adipose tissue in the lower part of the body, is really a disease—*lipodystrophy*, to be technical about it. At the meeting of the American Academy of Pediatrics in Washington Dr. P. A. McLendon of George Washington University discussed its occurrence and described a case that came under his own observation.

The patient was a little girl eight years old. Scarlet fever occurred after removal of tonsils and adenoids, followed by an acute kidney infection. The normal deposits of fat beneath the skin disappeared from her face and neck and the upper part of her trunk. "The lower trunk and thighs give the impression of excessive fat deposit—a 'Rubens' Venus."

This maldistribution of body fat is a rare disease; only about 100 cases have been described in the medical literature since its first discovery in 1885. Some of the cases show a history of skull injury, others the occurrence of acute infection that affects one section of the midbrain. Apparently the one fac-

tor in common is a severe disturbance of certain internal glands which are under control of that part of the brain.

Taught to See Straight

SEEING correctly is taught to small children afflicted with poor sight in one eye with consequent squinting, by making them use the poor eye exclusively for a time, and then admitting the good eye to a reduced share in the work of vision, Prof. William Thornwall Davis of George Washington University told the Academy.

At first, the good eye is taken out of use by simply putting a patch over it. Later, glasses are fitted with the lens over the good eye purposely made partially opaque. With only dim vision available, the child is not tempted to leave the poor eye unused, but exercises it until it has been trained to see better, and above all until the little patient ceases to turn it in. With patience, such discipline can be taught to most four-year-old children, Prof. Davis reported: "It takes an average of one year to correct a case of purely accommodative squint."

Ills from Vitamin Lack

YOU CAN have three different diseases, either separately or all at once (or your choice of any two), from lack of one or another of the half-dozen known parts of what used to be thought a single vitamin but is now called the B complex. You can have a touch of pellagra, or a bit of beriberi, or an attack of blinding keratitis.

This picture of the pathological Pandora's box that can be opened by failure to get your vitamin B complex was sketched by Dr. W. H. Sebrell of the U. S. Public Health Service, speaking before the meeting of the American Academy of Pediatrics.

These ill consequences of various vitamin B lacks are especially distressing as they appear in children, Dr. Sebrell pointed out, because they often go un-

recognized for what they are. Diagnosis is exceedingly difficult in many cases. One symptom of one of the diseases may appear, unaccompanied by any of the others that facilitate recognition of the malady when it appears in more typical, pronounced form in adults.

Pellagra and beriberi used to be considered "regional" diseases, the first of poverty-stricken neighborhoods in the South and the second of the Orient. However, greater clinical experience has shown that they are exceedingly widespread, at least in their milder, less easily recognizable forms. Furthermore, the speaker emphasized, none of the deficiency diseases due to lack of vitamin B complex is confined to the poorer social groups. Even the rich can suffer from the "hidden hungers" brought on by ill-balanced diet or failure by individual patients to absorb necessary vitamins after they have swallowed them.

Science News Letter, April 27, 1940

PHYSIOLOGY

Atom Smasher Helps Time Passage of Iron in Body

USE of the cyclotron, giant atom-smasher, to help time the passage of blood-building iron from food through the digestive tract was announced by Drs. David M. Greenberg, of the University of California, and Mario E. Austoni, University of Rome.

Unexpected new fact discovered in these studies is that about one-half of the iron absorbed by the body, representing one-fourth of that given the animals under study, accumulated in the muscles. No muscle storage of iron had previously been discovered, it is stated.

Iron tagged with radioactivity conferred on it in the cyclotron was given the test animals. About 12 hours were required for a single test dose to pass through the stomach and small intestines. Passage of iron through the digestive tract was found significantly slower in anemic rats than in normal ones. During a 10-day period the normal animals retained about 30% of the administered iron while the anemic animals retained about 50%.

Science News Letter, April 27, 1940

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Additional Reviews
On Page 272

EDUCATION—ECONOMICS

EDUCATION AND ECONOMIC WELL-BEING IN AMERICAN DEMOCRACY—*Educational Policies Comm.*, 227 p., 50c. The thesis of this report, prepared by a commission appointed by the National Education Association and the American Association of School Administrators, is that education in America needs strengthening and extension, that the cost of doing this would be a paying national investment. Full of facts and presenting a plan of action.

Science News Letter, April 27, 1940

EDUCATION

VISUAL AIDS: EXHIBITS, CHARTS, GRAPHS, MAPS AND PICTURES AVAILABLE FROM VARIOUS AGENCIES AND USEFUL IN HIGH SCHOOL AND COLLEGE TEACHING—Lili Heimers, comp.—*Visual Aids Service, N. J. State Teachers College, Montclair, N. J.*, 23 p., 50c. Arranged conveniently by subject and mimeographed.

Science News Letter, April 27, 1940

CHEMISTRY

PROPERTIES OF ORDINARY WATER-SUBSTANCE IN ALL ITS PHASES: Water-vapor, Water, and All the Ices—N. Ernest Dorsey, comp.—*Reinhold*, 673 p., \$15. This book is the newest volume in the well-known and much-used monograph series of the American Chemical Society. The extensive literature in this field is reviewed up through the year 1937 and gives a very complete picture, suitable for the expert.

Science News Letter, April 27, 1940

REFERENCE

WHAT TO READ — Alumni Reading Lists: Third Series—Edith Thomas, Fred L. Dimock and Nelis R. Kampenga, compilers; with aid of the University faculty—*Univ. of Mich. Press*, 285 p., \$1.25. The Extension Service of the University of Michigan Library has, since its

inauguration, distributed annually over ten thousand reading lists on various subjects to alumnae who have requested information. This third printed edition of the published lists has been revised and enlarged; it is well arranged and well annotated. College graduates everywhere, and librarians, will find it valuable.

Science News Letter, April 27, 1940

ETHNOLOGY

ESSAYS IN POLYNESIAN ETHNOLOGY—Robert W. Williamson; ed. by Ralph Piddington—*Cambridge (Macmillan)*, 373 p., \$7. (See page 264)

Science News Letter, April 27, 1940

AGRICULTURE—FICTION

ON MEDLOCK FARM—Henry Tetlow—*Morrow*, 272 p., \$2.50. Hunting. Hexerei. Revolutionary War History. Having a few drinks. And, oh yes, something here and there about living in a farmhouse that used to be a tavern, in Eastern Pennsylvania. By the author of *We Farm for a Hobby and Make It Pay*. A delightfully discursive book.

Science News Letter, April 27, 1940

ANTHROPOLOGY

CRANIOMETRY OF NEW GUINEA—Wilfrid D. Hambly—*Field Museum of Natural Hist.*, 107 p., 74 pl., \$2.50.

Science News Letter, April 27, 1940

HISTORY—GEOGRAPHY

NEWFOUNDLAND, A Summary of the History and Development of Britain's Oldest Colony from 1497 to 1939—R. H. Tait—*Author, c/o Newfoundland Information Bur., 50 Rockefeller Plaza, New York*, 260 p., \$2.50. An encyclopedic handbook, with a large section devoted to modern economic and social conditions. One chapter is devoted to Labrador.

Science News Letter, April 27, 1940

POLITICAL SCIENCE

THE EFFECT OF THE WAR ON AMERICA'S IDLE MEN AND IDLE MONEY—John A. Krout, ed.—*Academy of Political Science, Columbia Univ.*, 133 p., \$2.50 (Proceedings, Vol. XVIII, No. 4)

Science News Letter, April 27, 1940

BOTANY

A REVISION OF SALVIA, SUBGENUS CALOSPHE—Carl Epling—*Univ. of California Press*, 383 p., 60 pl., 43 maps, \$2.50. A carefully wrought out monograph of a difficult plant group, that will be welcomed by taxonomists.

Science News Letter, April 27, 1940

ASTRONOMY

THE STAR-GAZER—Zsolt de Harsanyi; translated from the Hungarian by Paul Tabor—*Putnam's*, 572 p., \$2.75. This historical novel will intrigue many students of science because it revolves around the life of Galileo. A really fine book for the library of any scientist.

Science News Letter, April 27, 1940

METALLURGY

REFINING PRECIOUS METAL WASTES—C. M. Hoke—*Metallurgical Pub. Co.*, 362 p., \$5. A useful handbook for the jeweler, the dentist and the small refiner who wishes to recover precious metals found in jewelers' wastes, the odd bits of valuable metal in dental offices, and metal which can be recovered from any photographic laboratory.

Science News Letter, April 27, 1940

FORESTRY

MEN AND TREES—Joseph Gaer—*Harcourt, Brace*, 118 p., \$1.25. The story of the conservation work of the U. S. Forest Service, briefly but adequately and vividly told. Particular stress is laid on the relation of tree conservation to soil and water conservation. Illustrations are exceptionally good.

Science News Letter, April 27, 1940

BOTANY

DESERT WILD FLOWERS—Edmund C. Jaeger—*Stanford Univ. Press*, 322 p., \$3.50. A good book for the botanical student or the more serious amateur. Descriptions are brief and to the point, though not too technical, and the line illustrations are true to life. Intended, of course, for use in the Southwest.

Science News Letter, April 27, 1940



This easy-to-use kit shows the way to perfect lawns, prize-winning gardens. Helps you correct harmful acid or alkaline conditions and supply needed plant food elements now lacking in soil. No knowledge of chemistry required. Sturdy, handsome imitation leather case. 50 individual tests for nitrogen, phosphorus, potash, acidity. Complete instructions. Helpful chart.

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•First Glances at New Books

Additional Reviews

On Page 271

GEOGRAPHY

THE SOUTH AMERICAN HANDBOOK, 1940 (17th ed.)—Howell Davies, ed.—H. W. Wilson, 691 p., \$1. A very comprehensive guide, stocked with facts and figures for travelers. It includes Cuba, Central America and Mexico, besides South America. The editor says that despite war-time difficulties in gathering trade and commerce information, this edition is as detailed and up-to-date as any of the previous 16 editions.

Science News Letter, April 27, 1940

BIOGRAPHY

SPEED BOAT KINGS, 25 Years of International Speedboating—J. Lee Barrett—Arnold-Powers, 143 p., \$2. The thrilling drama of speedboat racing is caught and excitingly told in this book.

Science News Letter, April 27, 1940

ENGINEERING

ALTERNATING-CURRENT CIRCUITS—K. Y. Tang—International Textbook Co., 438 p., \$4. The assistant professor of electrical engineering at Ohio State University here summarizes knowledge in this field for college students of the junior class in engineering schools. Mathematics through the calculus are a prerequisite of this book.

Science News Letter, April 27, 1940

INVENTION

STORIES OF USEFUL INVENTIONS—S. E. Forman—Appleton-Century, 289 p., \$1.20. The kind of book that schoolboys, who will be future engineers and scientists, will read by the hour. An abundance of illustrations add to the interest which the book will have for everyone.

Science News Letter, April 27, 1940

AERONAUTICS

SIMPLE AERODYNAMICS AND THE AIRPLANE (5th. ed.)—C. C. Carter—Ronald Press, 510 p., \$4.50. A very thorough volume on airplanes and their aerodynamics by a colonel in the U. S. Army who teaches at West Point. This book is an excellent approach to the subject for students of college caliber.

Science News Letter, April 27, 1940

ANTHROPOLOGY

THE ECONOMIC LIFE OF PRIMITIVE PEOPLES—Melville J. Herskovits—A. A. Knopf, 520 p., \$4.50. Learning from primitive cultures is a newer task for anthropology than the old-style aim of merely learning about them. Dr. Herskovits shows impressively what this new field offers, by comparing economies of

tribes the world over with economic concepts of our civilization. As the author points out: the need to compare the infinite possibilities open to human groups is acute in our day.

Science News Letter, April 27, 1940

BIOLOGY

LIVING SPECIMENS IN THE SCHOOL LABORATORY—General Biological Supply House, 93 p., \$1. A manual for science teachers, giving practical directions for the maintenance of interesting (and hence educationally useful) animals with the aid of not-too-elaborate equipment. Possible school "zoos" range all the way from amoebae to armadillos.

Science News Letter, April 27, 1940

BIOGRAPHY

CREATIVE PERSONALITIES, Vol. I, Vocations and Professions—Philip Henry Lotz, ed.—Association Press, 145 p., \$1.25. Inspirational biographies, including Burbank, the Mayo Brothers, John Dewey, David Livingstone, Lindbergh, Edison, and Millikan.

Science News Letter, April 27, 1940

PHOTOGRAPHY

ELEMENTARY PHOTOGRAPHY—Gilford G. Quarles—McGraw-Hill, 350 pl., \$3. Comprehensive and practical for those who want a book not too simple and yet not too advanced. The author is assistant professor of physics at the University of Alabama.

Science News Letter, April 27, 1940

CHEMISTRY

PROPERTIES AND NUMERICAL RELATIONSHIPS OF THE COMMON ELEMENTS AND COMPOUNDS (3rd. ed.)—J. E. Belcher and J. C. Colbert—Appleton-Century, 350 p., \$2.

Science News Letter, April 27, 1940

PHYSICS

THE CYCLOTRON—W. B. Mann—Chemical Pub. Co., 92 p., \$1.50. A compact book of British origin which summarizes the invention and development of the cyclotron in readable form for the intelligent layman. The literature is surveyed through 1939.

Science News Letter, April 27, 1940

GENETICS

THE PRINCIPLES OF HEREDITY (2d ed.)—Laurence H. Snyder—Heath, 452 p., \$3.50. New edition of a successful recent text in genetics.

Science News Letter, April 27, 1940

GEOGRAPHY

HAMMOND'S SELF-REVISING WORLD ATLAS AND GAZETTEER—Hammond & Co., 48 p., 25c. Keeping up with map changes now calls for ingenuity. This cardboard-back atlas provides sizable and clear maps of world countries, and shows how lines of Finland and Poland have shifted. For five cents and a coupon, the book owner can expect eventually to receive a supplement showing final effects of the war on the world map.

Science News Letter, April 27, 1940

TRAVEL

101 AMERICAN VACATIONS FROM \$25 to \$250.—Horace Coon—Doubleday, Doran, 265 p., \$1.98. Like reading the price column of a menu card first, the reader of this book can start with his vacation price and fit the trip to that. Each trip is outlined with schedules and transportation and sights mentioned, and dollars and cents costs of everything dot every page.

Science News Letter, April 27, 1940

CHEMISTRY

GENERAL COLLEGE CHEMISTRY—Joseph A. Babor and Alexander Lehrman—Crowell, 659 p., \$3.75. Chemistry as taught at the College of the City of New York. Current views of atomic structure are used to explain the physical and chemical properties of the elements.

Science News Letter, April 27, 1940

AGRICULTURE—MATHEMATICS

MODERN AGRICULTURAL MATHEMATICS—Maurice Nadler—Orange Judd Pub. Co., 315 p., \$2. A textbook intended for use in agricultural high schools. Problems are highly practical, ranging from the physics of a doubletree to calculation of interest on the mortgage.

Science News Letter, April 27, 1940

OCEANOGRAPHY

THE WORLD UNDER THE SEA—B. Webster Smith—Appleton-Century, 230 p., illus., \$3. A popular, well illustrated account of oceanography: the world of the sea and the creatures that dwell therein. The writer is British, but the book, like the seas, is cosmopolitan.

Science News Letter, April 27, 1940

ENGINEERING

REFUSE MATERIALS—American Public Works Assoc., 44 p., 50c. Bull. No. 8. Things and materials nobody wants, and problems connected with their collection and disposal.

Science News Letter, April 27, 1940